Spindle with 6” Newel Installation Instructions

A. PARTS AND SUPPLIES NEEDED FOR INSTALLATION

Included:

The following will be provided for each 10’ section of rail purchased:

2 2” x 1 ½” L Brackets
4 1 ¾” x $^3/_{16}$” Blue Hex Head Screws for anchoring L brackets to the Newel post, column or wall.
4 ½” Pan Head screws for anchoring L brackets to the sub-rail
3 ¼” x 3 ¼” Blue Phillips Head screws for anchoring bottom rail to the sub-surface.

The following will be provided for each Newel Post purchased:

1 1 ¼” Channel Iron
1 $^3/_8$” Threaded Rod: 36 ½” for the 6” Newel Post; 48” for the extended 6” Newel post.
1 $^3/_8$” Concrete Anchor and Hex Nut. A $^3/_8$” Zinc coated threaded insert will be provided for Wood Installation in place of concrete anchor.

Important: Rails should be stored on a flat surface, topside up, prior to being installed.
Rails are designed to butt into the sides of newel posts, columns or walls and not into each other. The structural integrity of this spindle system assembly is based on adherence to the following installation instructions.

Not Included:

The following will need to be purchased before beginning installation. Materials can be purchased at Home Depot, Lowe’s, or most home improvement centers.

Sub-Rail	Pressure treated ½” plywood ripped down to 3” wide cut the length of each to rail section.
Screws	1” Coarse threaded screws for anchoring the spindles to the sub rail.
Adhesive	Premium grade heavy-duty sub floor adhesive
Sealant/Caulk	Premium grade Elastomeric Latex Sealant such as DAP Dynaflex 230
Silicone	(optional) Use a premium grade of silicone on upper level installations where you want to prevent moisture seepage below.
Bondo	(optional) Used to fill in rail seams if necessary or for any repairs
Shims	(optional) **Can be purchased separately or with your order.** Shim size is 4” x 1” x 5” and is used primarily for roof top installations. Space shims 18” on center with a shim at 1” from both ends of each bottom rail section.

B. PREPARATION TIPS

General: Specify whether installation is on a concrete or wood surface and if there are any stair or roof top installations when ordering. This will insure that the correct installation hardware is provided with your order.
Each installation will vary slightly. Read the installation instructions completely. Consult your representative if you have any questions before starting your installation**.**

Cutting: Use a masonry blade where cuts are required on the top and bottom rail. Use a grinder with metal grinding wheel for a flush finish.

Drain Holes: Use Dewalt's 1 ¾" steel door hole saw. Drainage holes are not needed for wood installation.

Seams: The rails come in varied lengths cut to order to avoid seams, however if your installation necessitates a seam in the rail you can use automotive auto-body filler or "Bondo" to fill the seam. Follow the instructions on the can and sand smooth. Use the Dynaflex 230 to fill any gaps.

Adhesive: For all attachments it is recommended that a premium grade sub floor adhesive be used. Follow the directions for the adhesive used as not all products have the same drying times.

Sub-Rail: Use pressure treated ½" plywood ripped down to 3" wide cut the length of each top rail section. Synboard (see C15 for installation) will be installed as fillet after the spindle installation is complete.

Painting: Application of a high quality exterior primer such as Kilz or Zinsser 123 is recommended followed by a premium grade of exterior topcoat. Follow the paint manufacturers instructions concerning use within temperature ranges for best results.

Custom: Stair and radius rail sections are priced separately. For stair installations the newel post revel as well as the top and bottom of the spindle is extended to allow for angle cuts. A template, provided by the customer, is required for radius rail sections.

C. Installation of Straight Rail and Newel Posts-

See separate installation instructions for half newel posts (page 5) as well as stair rail and stair newel posts (page 6)

1. IMPORTANT – Floor sub surface must be finished before beginning installation. If rails are to be connected to a wall, round column, or your own posts, which were not purchased as part of our spindle system, you will need to have these installed before beginning installation. Make sure the spacing of the spindles and height of the completed spindle system adhered to your local code requirements and use guidelines. Lay out the complete spindle system allowing for the newel posts, spindles, and rails. Using a pencil, outline the placement of the bottom rail and newel post. Putting tape over the post pencil markings will protect the floor surface form and excessive adhesive. Tip: After setting, let the adhesive dry overnight. Remove overage with a sharp wood chisel.

2. Install the newel posts before installing the rails or spindles. The newel post consists of 2 pieces: the post and the cap. It is very important that the post is leveled under the post for leveling. The wedge will be caulked in after installation. If the

slope is greater than ¼" it is recommended that you trim the bottom of the post to level.

3. Mark the placement for the center of each newel post on the sub-surface. Drill an $^{11}/_{16}$" hole for the concrete anchor at the center of the placement. Tap the concrete anchor into the drilled hole. Wood installations will use a $^{3}/_{8}$" zinc coated threaded insert in place of the concrete anchor. Drill a ½" hole slightly deeper that the threaded insert and use a $^{7}/_{16}$" Allen wrench to screw the insert into the drilled hole. Clean area by brushing away any dust before applying adhesive in the next step.

NOTE: For upper level installations where you want to prevent moisture seepage below, use a premium grade silicone as described in the following instructions. Fill the drilled hole with silicone before inserting the concrete anchor or threaded insert and fill the anchor or insert with silicone as well. Insert the threaded rod. Prepare a 1 ½" gasket to fit over the rod putting silicone on both the top and bottom of the gasket. Tighten the gasket by using a $^{3}/_{8}$" x 1 ½" washer and hex nut, do not over tighten. Mound additional silicone around the gasket, washer, and nut and up 1" on the rod.

4. Apply a heave bead of adhesive to the bottom of the post. Center the post over the anchor and adhere it to the floor sub-surface. Note: the cutouts on the newel post should be facing up. Screw a $^{3}/_{8}$" threaded rod into the concrete anchor, or $^{3}/_{8}$" threaded insert for wood installations. Drill a $^{3}/_{8}$" hole in the channel iron that will like up with the threaded rod. Slip the channel iron over the threaded rod through the drilled hole and into the cutouts in the post. Secure the rod into the channel iron using a hex nut. Cut off any excess on the threaded rod if necessary.

5. Run a heavy bead of adhesive along the outer top edge of the post as well as around the inside ledge of the cap. Place the newel cap on top of the post and slide into place. Make sure the cap is square and even all around the center post. See separate instructions for installing half newel posts and stair newel posts.

6. IMPORTANT: Drill the drainage holes before securing the bottom rail sections to the sub-surface. **Note**: drainage holes are generally not needed for wood installations. Cut $^{7}/_{8}$" to 1" half round holes at the base of each bottom rail section at the point where the bottom rail connects to the newel post, column, or wall. **There should be a drainage hole on BOTH ENDS and on BOTH SIDES of the bottom rail**. You will also need to drill additional drainage holes on both sides of the rail at any other low areas or where deemed necessary. The preferred method for making the drainage holes is to use a dewalt 1 ¾" steel door hole saw. For two bottom rails the same length, turn the two rails over on their sides and clamp together. Using the hole saw drill a hole through the center of the clamped rails. This will give you a $^{7}/_{8}$" half round hole on both rails. If the rails are different lengths you can still use the 1 ¾" hole saw by first marking the rails for the drain holes, clamping the rails together and drilling a hole at the markings. If another piece is not available, clamp a piece of 2 x 4 to the bottom rail and drill the hole through the rail and 2 x 4.

7. Temporarily place the bottom rail inside the pencil marks and slide into place next to the installed newel post. **It is VERY IMPORTANT to leave a $^{1}/_{8}$" gap between the rail and the newel post, column, or wall at both rail ends**. These expansion joints will be caulked in later. Similar to any product subject to hot and cold weather conditions you may experience contractions and expansions in the rail, which may require occasional, touch ups in the expansion joints. Determine the spacing to be

used between each spindle and cut several wood blocks to that width. Be sure spacing adheres to the 4" sphere code, if required. Temporarily lay the spindles along side the rail and using the wood spacer blocks as a guide mark the spindle placements on the rail. Using a carpenter's square outline the sides of each spindle on the rail. Also, mark the spindle centers for placement of the spindle rods.

8. Use a ¾" spade drill bit to drill a hole through the bottom rail into the markings for each spindle center. The bottom rail is attached to the sub-surface using the ¼" x 3 ¼" blue Phillips head screws. You will use 4 per 10" rail section (2 per 5' section and 3 per 7' section) spaced equally. These screws will be placed right next to a ¾" drilled hole inside the spindle outline so that the spindle will be placed over to the screw. Counter sink and pilot drill a $^{3}/_{16}$" hole for each screw. Move the bottom rail and drill a $^{3}/_{16}$" into the sub-surface that will align with the $^{3}/_{16}$" screw drillings in the bottom rail. Clean area by brushing away any dust before applying adhesive in the next step. NOTE: For upper level 1 installations where you want to prevent moisture seepage below use a premium grade of silicone to fill the $^{3}/_{16}$" drilled hole in the sub-surface.

9. Turn the bottom rail upside down and using the adhesive spot glue approximately every 18" on the bottom of both sides of the bottom rail. **DO NOT run a continuous bead of adhesive the length of the rail and DO NOT caulk the bottom rail where it attaches to the floor, this will allow for drainage between glue spots**. Place the rail back into place inside the markings; remembering to leave the 1/8" expansion gaps at both rail ends. Screw in the ¼" x 3 ¼" screws. **CAUTION**: <u>Do not over tighten the screws.</u>

10. Before installing the spindles measure the height of the spindles that will be used for that rail section. Due to shrinkage after casting, spindles may vary slightly in overall height. Measure all spindles and group by height so that similar height spindles will be used together in each section. Set the two tallest spindles for that rail section at each end. You may also trim the spindle tops to the same height if desired. Run a continuous bead of adhesive around the bottom of each spindle and set the spindles in place on the rail using the pencil markings for placement. Be sure to line the spindles up with the seams positioned on the same side and pointing in the same direction.

11. For sub-rail take the ½" pressure treated plywood ripped to 3" wide and cut to the length required to fit flush (no gaps) between the newel post, column, or wall. Run a bead of adhesive around the top of the spindles. Center the sub-rail over the top of the spindles making sure each spindle is level and square. Use the wood spacer blocks to level spindles. Tack the sub rail to the spindles using an air gun and shoot 2 – 1" nails close to each spindle center. Secure the spindle by counter sinking and pilot drilling $2^{7}/_{64}$" holes close to the spindle center and screw in 2 – 1" screws.

12. Before attaching the L bracket to the sub-rail and newel post, column, or wall apply adhesive to the backside of the L bracket. Attach the 2" side of the L bracket to each end of the sub-rail using two ½" pan head screws. Center the L bracket on the newel post, column, or wall and attach the 1 ½" side of the L bracket by pilot drilling two holes with a $^{5}/_{32}$" drill bit. Screw in two 1 ¾" x $^{3}/_{16}$" blue hex head screws per L bracket.

13. To install the top rail – run a bead of adhesive along the top of the sub-rail as well as along the channel underneath the top rail. Slide the top rail into place over the sub-rail. **It is very important to leave a $^{1}/_{8}$" gap at both ends of the rail between the top rail and newel post, column, or wall**. These expansion joints will be caulked in later. Between every fifth spindle opening counter sink and pilot drill a $^{7}/_{64}$" hole on the underside of the sub-rail into the underside of the top rail. Screw in a 1" coarse threaded screw. This will tighten the sub-rail to the top rail.
14. To attach a rail that will go from a round column to a round column, you can cope the top and bottom rail with a grinder, belt sander, and/or dremel tool, to fit around the column and base/plinth. You may also cut the column base in half, slide the rail to the column, and cope both base halves to fit around the bottom rail. Using adhesive glue the base/plinth on to the sub surface around the column.
15. To finish, lightly sand the rails and newel posts. To install the synboard fillet under the top rail cut the synboard to the width required to fit between the spindles. Use an air gun or adhesive to attach the synboard to the sub-rail. Cauld the seams, the 1/8" expansion joints and connecting points with Dynaflex 230. **For drainage do not caulk the bottom of the rail where it is adhered to the floor sub-surface**. It is recommended that a high quality exterior primer such as Kilz or Zinsser 123 should be applied to the rails, newel posts and spindles followed by a premium grade of exterior topcoat. Follow the paint manufacturers instructions concerning their products use within temperature ranges for best results. Do not use paint or solvents containing acetone.

6" HALF NEWEL POST INSTALLATION INSTRUCTIONS

The following will need to be purchased before installation:
You will not need a channel iron, threaded rod or the concrete anchor and hex nut for installation of the half newel post. The materials that are needed can be purchased at Home Depot, Lowe's, or most home improvement centers.

For each half-newel post you will need to purchase:

1 2 x 4 x 24" Pressure treated board to secure the half post to the wall

8 ½" x 3" Blue Tapcon Phillips Head Screws

1. Read steps C2 – C5 on pages 2 and 3 before proceeding. Installation of the half newel post is similar to the full newel post. Check that the post is level before beginning installation.
2. Temporarily locate and mark the position of the half post on the wall. Place the treated board on the wall so that it will be centered in the cavity of the half post. Apply a generous amount of adhesive to the back of the board. Counter sink and pilot drill 4 holes using a $^{3}/_{16}$" drill bit through the 2 x 4 x 24" board and into the wall.
3. Secure the half cap to the post by applying a generous amount of adhesive all around the edges of the half cap and half post. Center cap and attach.

Stair Installation Instructions

The Following will be provided for each Extended Newel Post Purchased:

1 1 ¼" Channel Iron

1 $^{3}/_{8}$" Threaded Rod – 48" in length, which will be shortened so that the cap fits flush.

1 $^{3}/_{8}$" Concrete Anchor Hex Nut. A $^{3}/_{8}$" zinc coated threaded insert will be provided for wood installations in place of the concrete anchor.

Not Included:

The materials that are needed can be purchased at be purchased at Home Depot, Lowe's, or most home improvement centers.

For each extended newel post and each rail section you will need to purchase:

Sand and concrete mix for the extended posts

4 ¼" x 4" Blue Tapcon Phillips head screws

$^{3}/_{16}$" x 2 ¾" Tapcon Phillips head screws – 2 for each extended spindle

1" Coarse screws

1. Read installation instructions in C above before proceeding. The rails will attach to a standard height newel post, column, or wall at the top of the stairs. An extended post will attach at the bottom of the stairs. Temporarily position the extended post at the bottom of the stairs and the standard newel post at the top of the stairs. Place the bottom rail alongside the top and bottom posts and mark the vertical position on the rail to determine the angle cut. Remember to leave the $^{1}/_{8}$" gap for expansion on both ends of the rail.
2. To determine the height needed for the extended post, temporarily slide the bottom rail back into place and position it against the top and bottom posts. Mark the bottom post so that the height of the revel is the same for both the top and bottom posts. Use a masonry blade for cutting the rail and bottom of the post.
3. It is important that both posts are level and square before installing. After cutting the bottom post to the correct height install the post as described in steps C2-C4 on pages 2 and 3. **DO NOT install the cap at this point. Be sure post and threaded rod is secure and stable on the sub-surface before continuing.** The bottom extended posts will require a strong and stable installation, as the grade of the stairs will force more weight onto these posts. For added strength pack the bottom extended posts with a mixture of 2/3 sand and 1/3 concrete mix that has been slightly moistened. The concrete mixture should come to the top of the newel post. Be sure to use a moistened, not wet, concrete mix to minimize leaching between the base and floor surface, which could result in staining the floor surface. Cut off any excess threaded rod if necessary and attach the newel cap as described in C5 on page 3.
4. Attach the bottom rail to the top and bottom posts by counter sinking and pilot drilling a $^{3}/_{16}$" hole on both sides and at both ends of the bottom rail. The hole needs to be angled to go through the side of the rail into the bottom of the post. Secure the rail with the 4 – ¼" x 4" blue tapcon screws.
5. Temporarily place the pressure treated sub-rail against the top and bottom newel posts to mark the height for the top rail. You will want the same distance between the top and bottom rail as the rail on the straight runs. This will also determine the angle to cut

the top and bottom revels of the extended spindles. Make sure the spindles are in a level position vertically and that the seams are all pointing in the same direction before marking and cutting using the wood spacer blocks as a guide. The spindle should be cut equally at the top and bottom so that the reveal is the same.

6. Before attaching the spindles to the bottom rail mark the spindle positions on the rail so that they are spaced equally along the rail. Start by installing the top and bottom spindle to bath the bottom rail and top sub-rail first. Before installing apply a heavy bead of adhesive to the bottom spindle ends. To install the bottom spindle counter sink and pilot drill two $^{5}/_{32}$" holes on the sides of each spindle. Angle the hole through the spindle and into the bottom rail. To install the top spindle and middle spindles drill the holes at the bottom on the front side of each spindle i.e. the side facing the bottom newel post. Secure each spindle to the bottom rail by using 2 – $^{3}/_{16}$" x 2 ¾" tapcon screws.
7. Follow steps C11-C12 on page 4 for installation of the sub-rail including the L brackets.
8. To install the top rail place the top rail alongside the top and bottom posts and mark the vertical position on the rail to determine the angle cut. Follow the installation and finishing instructions in steps C13-C15 on page 5.